The Gold Report
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Jim Powell: Meeting the Critical Metals Demand

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Is there a clear path to meeting growing global critical metals demand? An important first step, according to Laurentian Bank Securities' Technology and Strategic Metals Analyst Jim Powell, would be to establish supply sources that aren't concentrated in a single country—particularly one that isn't inclined to share its resources with the rest of the world. In this exclusive interview with *The Critical Metals Report*, Jim points out some potential plays to look for while the landscape is changing.

Companies Mentioned: **American Manganese Inc.** - Avalon Rare Metals Inc. - Colt Resources Inc. - Great Western Minerals Group Ltd. - Hudson Resources Inc. - Lynas Corporation - Malaga Inc. - Molycorp Inc. - North American Tungsten Corporation Ltd. - **Quest Rare Minerals Ltd.** - Sumitomo Corp. - **Tasman Metals Ltd.**

The Critical Metals Report: There's a lot of confusion about the future supply and demand equation for critical metals, which we've defined as rare earth elements (REEs), minor elements and strategic metals. What do you consider the most important minerals and why?

Jim Powell: In terms of investment options, I'd focus primarily on electrolytic manganese metal (EMM), fluorspar, graphite, tungsten and rare earths.

TCMR: Why is that?

JP: A lot of these are controlled by one supplier—China—in most cases. The overall EMM market isn't huge, but it's large enough to leave room for other suppliers. At this time, China supplies more than 98% of that market.

Fluorspar is used in acids and fluorine-based chemicals, so a lot of chemical companies need it, as do steel and aluminum manufacturers. Fluorspar is more than 50% supplied by China.

TCMR: How about graphite?

JP: Graphite's another mineral that's also controlled largely by China. There used to be a fair number of producers in North America and Europe, but most of them shut down over the last 10 years as China outpriced them in the market. Graphite is a refractory used primarily in nuclear reactors and batteries. Actually, there's more graphite than lithium in lithium-ion batteries.

Tungsten is somewhat underappreciated for what it does. It's widely used in tooling,

in the mining industry—even in products, such as the Blackberry. Those little vibration elements used in the Blackberry are made of tungsten. China currently produces in excess of 80% of the global supply of tungsten with a handful of minor suppliers in Canada and Russia sharing the rest.

Of course, China also dominates the supply of rare earths, which are pretty mainstream because even though it's a very tiny market, REEs are very critical elements. There are lots of investment options there—almost too many.

TCMR: You've mentioned batteries, manufacturing, tooling and electronics. Where is the major demand for these elements? Is it technology for alternative energy? Is it magnets? What's driving the demand?

JP: A lot of it's technology-related; the bulk of the rare earths go into technology-type applications. As I said, batteries use graphite and a variant of electrolytic manganese—EMD, electrolytic manganese dioxide. The current generation of batteries for cars, such as GM's Volt, is manganese-type batteries. So, there's another clean-tech focused use.

Industrial use is also important. Tungsten is pretty much all industrial use, and so is fluorspar. EMM is used largely to manufacture stainless steel and aluminum.

TCMR: You said that China dominates the market for the EMM that's used in the new batteries?

JP: Yes, and probably the biggest issue with that is what happens if China uses it all domestically. If it can, it will. We're seeing that with the export quotas China has on rare earths, and that could start with some of these other minerals as China runs out of internal supplies. The carbonate deposits from which China mines EMM are running low, and it might just decide not to supply the rest of the world anymore. As a result, we have a somewhat unreliable supplier—one that may at any time just use it internally to satisfy its own demand.

TCMR: Are you following any companies that have the potential to create EMM supplies outside of China?

JP: Yes. There's only one company—let's face it—that's solely focused on it. American Manganese Inc. (TSX.V:AMY, OTCPK:AMYZF) is poised to become the lowest-cost EMM producer. That's mainly due to the fact that the type of deposit AMY has is easily leachable into acid. In addition, the company has lower-cost power in Arizona versus competitors in China and South Africa. Those are its main technical advantages.

TCMR: You have a target price of $2.90 on that; is that correct?

JP: Yes. And that's what I'm sticking with, even though it's a fair bit away from current pricing. I actually felt the target was somewhat conservative—not aggressive at all; a relatively high discount rate. It's just that AMY will be able to make EMM for around $0.50/lb., whereas it currently sells in Europe for $1.55/lb. to $1.60/lb., and around $1.80/lb. in the U.S. AMY's production costs will be so low that the company

could even make money selling their product into China.

TCMR: China's lock on rare earth supplies, worsened by its export quota policies, has increased REE prices significantly. How will high rare earth prices and lack of supply affect future demand? Will manufacturers engineer alternatives to these elements?

JP: There are ways of doing things without some of the rare earths, but some of the heavy rare earth elements (HREEs) used in phosphorous, for example, are harder to replace. Neodymium as a permanent magnet is the most superior type of magnet. An alternative is an induction motor, which is larger and less efficient but can do the job. The Volt uses an induction motor, as does the Tesla Motors car in California, so those are examples that use a substitute for REEs that costs less but weighs a little bit more and delivers lower performance. So, there are ways around it.

You're also seeing Sumitomo Corp. (TKY:8053; OTCPK:SSUMF) selling cerium, lanthanum and other products coming out of its deal with Molycorp Inc. (NYSE:MCP) in Japan where customers are either designing the REEs out of their products or learning how to use less. That's partly because they just won't accept the high REE prices anymore, but I think a bigger part is lack of availability. Besides, manufacturers don't want to be tied to one supplier that could change its mind about shipping the product at any point in time.

TCMR: Are other companies positioning themselves to meet that demand outside of China?

JP: Yes, early on I think it will be Molycorp and Lynas Corporation (ASX:LYC) that help ease supply issues with many of the light rare earth elements (LREEs). I have no doubt that both of them will reach production within the year. It will probably bring pricing down quite a bit on the lights, though, and probably result in an oversupply of certain light minerals, such as cerium and lanthanum, in the short term.

TCMR: How about the heavies?

JP: I believe that over the longer term, the heavies will still be in demand, and that demand won't be met until larger rare earth producers, such as Avalon Rare Metals Inc. (TSX:AVL; NYSE.A:AVL; OTCQX:AVARF) and Quest Rare Minerals Ltd. (TSX.V:QRM; NYSE.A:QRM) come online, which isn't until 2015–2016. So, they're still some time away from production. In the short term, that's going to keep the HREE prices high.

TCMR: Are you watching any other companies in the HREE space?

JP: Well, we're focused primarily on the heavies, so we do cover Quest and Avalon and like the heavy nature of their deposits. Another interesting one that pops to mind that we don't cover is Tasman Metals Ltd. (TSX.V:TSM; OTCPK:TASXF; Fkft:T61); it's in Sweden. Its advantage over others has been its good geography, relatively low costs and the fact that you can actually drive there in a regular car. Avalon and Quest are fairly remote, in terms of getting in their supplies and people to mine their deposits, and both have fairly high capital costs—in the $500 million to $1 billion

range. Quest has a great open-pit deposit, so it will be fairly low-cost once it gets to production.

TCMR: But you say the company won't be producing until 2015–2016?

JP: That's right. Avalon is about a year ahead of Quest, in terms of getting to production.

TCMR: Back in April, you had a speculative buy on Quest with a one-year price target of $10.80. Is that still what you're targeting?

JP: That's still what we're looking at, even though there's been a bit of a selloff. It's not surprising; it's just the way the markets have been selling off. So, yes, our targets are still current on Quest, and we continue liking it. We maintain our target on Avalon, too—at $8.70.

TCMR: Any other rare earth plays on your radar?

JP: Hudson Resources Inc. (TSX.V:HUD) has a deposit in Greenland that looks pretty interesting. It's high in neodymium, which is going to be an in-demand element for a long time because it's used to make the permanent magnets.

TCMR: One of the trends in the rare earth sector is the idea of vertical supply chains. What role will vertical supply chain integration play in creating strategic advantages for some of these companies?

JP: Well, some of them, including Molycorp and Great Western Minerals Group Ltd. (TSX.V:GWG; OTCQX:GWMGF), are moving from mining the minerals right through to manufacturing the magnets or developing the operations to produce them. I'm not a huge fan of a company buying its customers out in order to supply itself. I find it very rare for that to work in any industry.

My preferred way to go with vertical integration would involve strategic partnerships between the customers and the producers, or equity stakes. The companies doing this are going back in the supply chain and securing a supply, and this makes a lot more sense to me. It's probably a better way to do it, in my view, than becoming your supplier or buying your supplier. I can't find another industry where this actually makes sense and works well.

Once companies specialize in a certain segment, I don't like them generally moving out of that segment into new areas just to capture a little bit more margin, which is what's taking place here. The margin in the manufacturing of the magnet is in the 20%–30% range.

TCMR: And what about integrating the processing or milling into the mining company?

JP: Right now, it would be a strategic advantage to have a separation facility attached to a mine, and a few companies are looking at that. Avalon has scoped it out and is working on a plan to get there, but it's a very expensive proposition and the

knowledge isn't necessarily readily available in the Western world. Still, to be the first mover on getting a separation facility would probably be a good idea for Avalon and any other company that's looking to get into that market. In the short term, it's advantageous to get those facilities online because the companies don't want to ship the concentrates back into China for separation.

Once the separation facilities exist in the Western world, though, other companies—including smaller ones that will just mine and produce a concentrate—should be able to avoid that very large capital investment. They shouldn't have a problem either sending or selling the concentrate to other companies for processing.

TCMR: How important is processing in the value equation? How much more could a company make on processing its own concentrates?

JP: The way it works now, the rare earth companies that don't have these facilities—which now are available only in China—produce concentrates of all of their rare earths sort of mixed together. They then sell that to a facility that can separate it off into the individual oxides and maybe further process that, and some of it into metals. The difference between the concentrate sale price and a separated sale price is about 30%–40%. In other words, a company could realize a 30%–40% higher margin by separating it itself.

TCMR: That's significant.

JP: It is but the cost of building and running a separation facility is also significant, so some of the juniors will be better off just producing a concentrate.

TCMR: With production still five years or more off for a lot of these companies, what's Laurentian Bank Securities' strategy for evaluating risk and investing in this sector? How do you determine which companies are likely to do well that far out?

JP: We start with the management. We meet with them and determine if they know what they're doing, what their strategy is and if their plan for five years out makes sense. We also look at whether the elements these companies will potentially be producing will have value in the future.

That's the juncture at which we split out companies that focus primarily on light rare earths versus the heavies. With Molycorp's mine coming onstream and producing lights to add to the supply stream within the next year, we expect many of the LREEs to decline in value. We use different long-term price targets on the different elements just to determine where they are and where they're going to be.

TCMR: What about some of the critical metals beyond rare earths?

JP: Again, our evaluation considers supply and demand and where we think costs will come in. For example, not many folks are looking at producing EMM in the market outside of China, so American Manganese's deposit and its low-cost power put it in a good position to do well in that market and capture a large part of the market share outside of China.

There's not a lot of new supply coming online in graphite, and we haven't found many companies really engaged in working on that yet. It's not like REEs, where several hundred companies are working on it. However, we're aware of several smaller deposits, so we should see more plays in this space before too long.

With fluorspar, maybe two or three public companies are focused on it; so, as with graphite, fluorspar isn't something that's going to flood the market all of a sudden. There are a few tungsten producers and that market is very small, but I think the right producer with the right grade and right cost structure could do well in that market. And as I said, in our view, tungsten is an undervalued commodity.

TCMR: What tungsten plays do you like?

JP: There's a combination of exploration companies and producers in the tungsten space. I cover Colt Resources Inc. (TSX.V:GTP; OTCQX:COLTF), which has what looks to be a significant deposit once it proves it out. Among the producers are Malaga Inc. (TSX:MLG) and North American Tungsten Corporation Ltd. (TSX:NTC). Malaga has its Pasto Bueno tungsten mine in Northern Peru, which has been producing for years. It's a rather small-scale operation right now, but it is in production. North American has been producing for some time, as well.

TCMR: How far away is Colt Resources from proving out?

JP: Well, it's doing a lot of drilling right now. The deposit is a historic resource of about 1 million tons (Mt.), which is very tiny, but it's at .87 grade—a relatively high grade. Visiting the site, you can see tungsten outcropping in several areas; so, once the company completes the step-out drilling and gets an NI 43-101 resource estimate, I think it will grow quickly into a deposit of significance.

TCMR: Any last words you'd like to leave our readers with, Jim? What's the most important thing for them to consider when they're looking at this space?

JP: I think you have to look at where technologies and consumer trends are going in order to pick these plays. If you'd picked rare earths a year ago, you'd have done really well; but at the time, who realized it would take off the way it did?

We've been looking at a bunch of these different sectors that aren't in vogue right now—not popular. We've focused our research on the fundamentals, which include controlled supply, few suppliers outside of China and areas in which we expect to see demand increase over the next five or six years.

TCMR: Thank you very much, Jim. This has been very informative.

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